TSR

User's Manual

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Management Software for
***TempStick Radio* and**
Intelligent Sensors + Radio Node
Temperature wireless sensors

Software version 1.1.2.0

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Introduction

TSR is a software program that is used to configure and acquire data off *TempStick Radio* temperature sensors and transmitters. Through a *USB Radio Receiver* it receives data from wireless sensors, the *TempStick Radio*, and shows temperature values in table and graph, real time. All data can be saved and printed in reports. The software allows also the setting of thresholds for alarms.
The sensors are supplied with a replaceable battery with high autonomy (based on the rate of transmission: approximately, with a transmission each 5 minutes the battery can last up to 7 years).
The data may be exported in Excel (.SLK) file format. *TSR* is also used to program the rate of transmission for the sensors, provided that you have the appropriate interface to do this.

Each sensor transmitter is identified by means of two unique serial numbers (one for the sensor itself and one for the radio), and, if requested, may be supplied with a calibration certificate in order to guarantee the validity of the acquired readings.

Available devices

Following the list of the devices currently supported by the SPD software, with the needed accessories (all with their product code).

Interface	***Data logger***
Radio Configuration Interface (ts04rci) USB Radio Receiver (ts04rr)	TempStick Radio (ts01tsrxxyy, ts01tsr200xxyy)
	Temperature Intelligent Sensor (ts11istxxyy, ts11ist200xxyy, ts11ist-80xxyy) + Radio Node (ts11rn)

System Requirements

Hardware

Description	***mum***	***Recommended***
Microprocessor	Celeron 300	Pentium III 400
Memory	1 GB	4 GB
Video	800x600; 256 colours	1024x768; 16 Mil. colours
1 USB free port for the Radio Configuration Interface 1 USB free port for the USB Radio Interface		

Software

Description	***Supported***
Operating system	Windows XP / Vista / 7 (32 bit and 64 bit)

Installation

To install TSR simply insert the installation CD into your CD-ROM; click on **Start – Run** and type “D:\setup.exe” (N.B. Your CD-ROM device could have a different name to “D”).
Select the installation menu language and click on **Install**, then select SPD and click **Install** again; from this menu you can also open the PDF manual or the USB driver installation instructions.
Follow the instructions to complete the installation. You may be required to install Microsoft .NET before installing the TSR: accept and proceed. We suggest to install TSR for all users (*Everyone*). At the end click on **Finish**.

Instruments and accessories

All loggers currently managed by the TSR software are connected to the PC by means of a single interface, the Radio Configuration Interface.
The first thing to do is connect the interface to a free USB port and install the drivers.

Connecting the DiskInterface

In the kit there is also a USB cable: connect the biggest flat end in the free USB port of your PC while the other smaller end in the USB connector on the device.
As soon as the device is connected to the PC, Windows will detect its presence and will begin the driver installation procedure. According to your operating system, proceed as follows.

USB driver installation under Windows XP

In the *Add New Hardware* window, select *No, not now* (last option) and click **Next**. Then, select always the last option, which requires manual installation of the driver (for expert users) and click **Next**. Set in the path field, the following path (make sure the CD is in drive): "D:\Drivers\XP_2000 (32 bit)" (your driver might not be called “D") and click **Next**. If, during installation, Windows would give you a warning about the origin of the unsigned drivers, click **Continue**, and after the procedure, click **Finish**.

If you change the connection port of the interface, you might be required to reinstall the drivers.
Note: the Radio Configuration Interface drivers is available on the Tecnosoft website and are also found in the installation folder of the program, if you lose the installation CD.

USB driver installation under Windows Vista/7

Windows will install the driver, without success. When you will get the option, ask to specify a path to look for the drivers. Set in the path field, the following path (make sure the CD is in drive): "D:\Drivers\Vista_7 (32 and 64 bit)" (your driver might not be called “D") and click **Next**. If, during installation, Windows would give you a warning about the origin of the unsigned drivers, click **Continue**, and after the procedure, click **Finish**.

If you change the connection port of the interface, you might be required to reinstall the drivers.
Note: the Radio Configuration Interface drivers is available on the Tecnosoft website and are also found in the installation folder of the program, if you lose the installation CD.

Unsuccessful installation

If, for various reasons, the installation fails, go to **Control Panel - System - Device Manager** (or **Hardware - Device Manager** for Windows XP), select *USB Ports* and click the right button on *RCI* and select **Update Driver**. Then, follow the instructions above.

Devices connection

The devices must be connected to the free end of the cable connected to the Radio Configuration Interface, in the connection named “*com*”.

Connecting the USB Radio Receiver

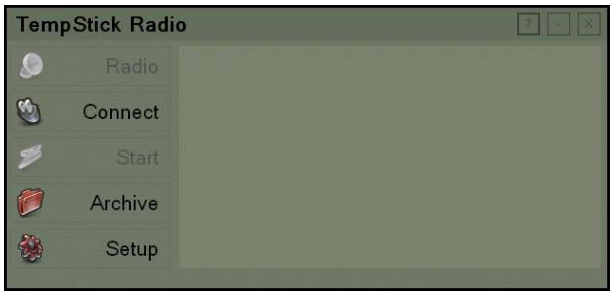
An essential part of the data logging system is the *USB Radio Receiver* that receives all the data from the different *TempStick Radio* and send them to the software. Just insert the USB B type connection (square end) to the *USB Radio Receiver* and the USB A type connection (flat end) to your PC. No driver installation nor configuration is needed.

Basic Operations

Launching the Program

Once the installation is complete, double click on the **TSR** icon on the desktop to start the program, alternatively navigate to **Start – Program Files** (or **All the Programs**, if you're using *Windows XP*) **– Tecnosoft - TSR – TSR**. For the use of the icon **TSR – AutoSave**, see p.11 .

The Main Window



The left part of *Main Window* holds the function buttons, whereas the central part of the window shows the details of the connected *TempStick Radio* (when connection is established); on the right corner the question mark (**?**) opens the *Info* window and the **X** closes the *Main Window* itself
If you need to move the window within your desktop, click on the dark green border at the top of the window with the left mouse button and, keeping it pressed, move the window to the desired position.
Initially only the **Connect**, **Archive** and **Setup** buttons are be available; the others will be enabled once a sensor is connected to the interface or when the *USB Radio Receiver* is connected.

Information and Online Help

Click on the question mark button in the *Main Window*; The *Info* window will open, displaying the software version and the program licence agreement. Click on the question mark in this window to open the *Online Help* and on the **X** to close it.

Exit the program

To exit the program just click on the **Close the program** button, i.e. the **X** on the top right of the *Main Window*.

Configuration

Click on the **Setup** button to open the window where you may set the program parameters. To confirm changes click **Accept Data** and to cancel them click on **Close** (bottom right corner).

The window is divided into several sections.

Temperature Mode

Select the desired units to be displayed for temperature degrees: *Celsius* or *Fahrenheit*.

Connection

Select whether you use a USB interface or a serial one (select from the list of available serial ports the port that corresponds to the one where the reader interface has been connected) to connect the *TempStick Radio* (not the *USB Radio Receiver*, which doesn't need any configuration at all).

Language

You may choose the preferred language used throughout the program; to effect changes close and start the program again.

Export Path

The folder specified here is used as the default folder when you export data in Excel format (*.SLK). Click on the folder button to navigate to the desired folder.

Data Path

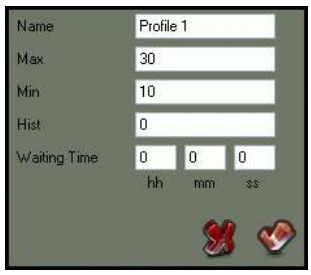
The folder specified here is used to store the acquired data from the loggers. Click on the folder button to navigate to the desired folder.

Alarm Profiles

Here you can create several profiles to set alarms to each radio sensor connected. To see the details for a profile just place on it the cursor and wait for the tooltip to show.

Add a Profile

Just click on the plus (**+**) sign to open a new window where you can set the *Name* of the profile, the *Max* and *Min* thresholds for the alarms, the *Hysteresis* (*Hyst*) for the two values and the *Waiting Time*, meaning for how long the temperature must be out of threshold before actually giving the alarm.



Remove a Profile

To remove a *Profile* from your list, select it form the drop down list and click on the **Remove Profile** button (the rubber button next to the plus sign).

Printing Options

Here you can set the headings for the report to be printed.

Heading 1

The title of the report.

Heading 2

The sub-title of the report.

Heading 3

Additional information text to be printed on the report.

AutoSave

Here you can enable the option for automatic save of the data; this function is particularly suggested for long time processes or continuous monitoring, like for fridges. Set here every how many days or hours the software must save the data and restart (the name of the file will be the standard one). It is suggested to set a time no higher than 5 days.
After you have set this option, close the program and restart it using the **TSR – AutoSave** desktop icon. The software will save the data at the set time and will close itself and start again. If you want to close it permanently, close the DOS window first.

Start a New Mission

To start a new mission and program the unit, ensure the interface is connected to the PC and that the unit is correctly connected to the interface.
Click on the **Connect** button in the *Main Window*; after a while the connection is established and *TSR* will display some basic information about the data logger. Moreover, the **Start** button that were previously disabled are now enabled.

Information on the unit

The central part of the window holds some information on the connected unit. On the right the current temperature value read by the logger is shown. On the left there are the following indications:

– *Started*: date and time at which the current mission was started;
– *Step*: transmission rate of the current mission;
– *Status*: device status (*Recording* means the unit is acquiring data, *Stopped* indicates the mission has ended, *Stand-by* implies that a mission is programmed and will start once the programmed start delay time has elapsed);
– *Serial*: serial number of the *TempStick Radio*, followed by the number of the radio itself (this last number is listed in the graph);
– *Expiry*: the calibration expiring date of the unit.

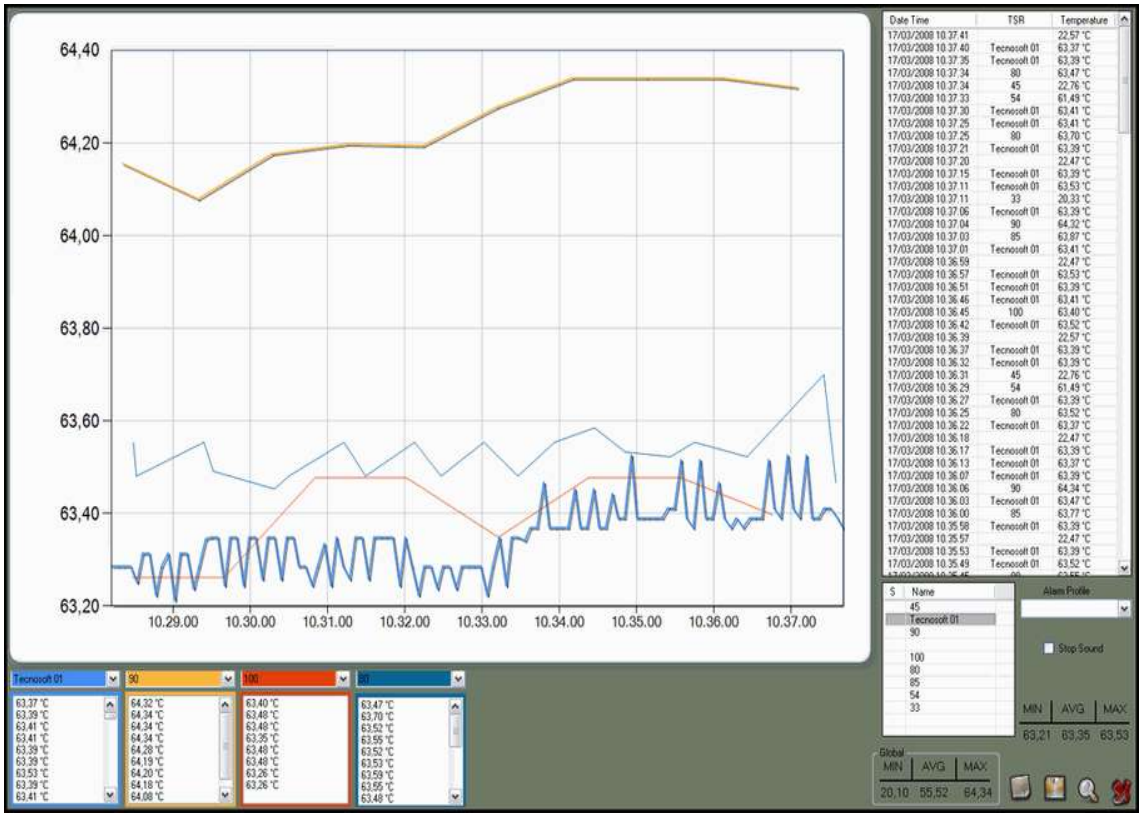
Starting a mission

Click on **Start** to open the programming window of the *TempStick Radio*.
In the *Start Date Time* box select the date and time at which you would like the mission to start. If it is the current date and time, the mission will start immediately, otherwise you can set the mission to start in the future.
In the *Transmission Step* box you must define the acquisition rate, expressed in days, hours, minutes and seconds. You may leave unnecessary fields blank (you do not have to enter 0). You may also type a *Description* for the unit, so to recognize it instead of using its serial number, and some additional *Notes* at the end to help you identify the mission in the future.
Click on **OK** to start the mission.

Click on **Unlink** before removing the unit from the interface.

Receiving the transmitted data

To display real time the data transmitted from the *TempSticks Radio* you have, click on the **Radio** button (it is enabled only if a *USB Radio Receiver* is connected): once the connection is established, a window displaying a graph and table will appear. To maximize it, click on the magnifying glass in the bottom right corner of the window (*Maximize Window*).



The right part of the window displays all the data from all the units, indicating the date and time, the name of the unit (the *Description* you set when starting the mission or the serial number of it) as well as the temperature values. You can scroll through the data using the right vertical bar.
On the left there is the graph, which is blank at the beginning, and under it there are four drop down list and a list under each one of them. From the drop down list you can select one of the unit received and its graph will be displayed. The borders and the drop down list will change colour and the lines in the graph will have the same colour of them.

Statistics

On the right, under the list of data, there is a table that shows all the units received so far. If you select one of them, you will see its statistics on the bottom right:

- *MIN*: the minimum temperature transmitted;
- *AVG*: the average temperature;
- *MAX*: the maximum temperature transmitted.

You may select more than one unit from the list pressing the CTRL button (keep it pressed and select the units you want to see the statistics of).
To see the statistics of all data received, look in the *Global* box below the list of transmitters.

Export data

To export the data for this mission click on the **Export Data** button (the disk) located at the bottom right of the window: if you have not set the destination folder for the exported files (*Configuration* chapter, p.10), the data

will be exported in the main folder of the program. The export file has a .SLK extension, and may be imported in Excel.

Alarms setting

In the same way you select the units to see their statistics you can select them and assign an alarm profile to each of them. Select one or more unit and then assign it or them a profile from the drop down list *Alarm Profile*.
When an alarm occurs, according to the parameters set in the profiles, the unit that is in alarm will turn red and a + sign will appear if the temperature is above the maximum threshold and blue with a - sign if the temperature is below the minimum threshold (if you see only the signs, it means that there had been alarm in the past for that sensor). Also, there will be a sound alarm. When all the alarmed units will return between the thresholds, the alarms will cease.
You can turn off the sound alarm by checking the *Stop Sound Alarm* box: note that if another unit will go into alarm after you checked this, the alarm will start again for this second unit. To disable the sound alarm, check the *Disable Sound* box.

Mission report printing

It is possible to print a report of the mission currently displayed: click on the **Print report** button (the left most button in the right corner of the window). It will open a dialogue window where you can type in some notes regarding the current mission. Click on **Report** again to continue.

From the dialogue box that appears select the printer and click on **Print**. The *Print Preview* window will appear where the report is shown: all the information regarding the mission, along with the graph, are there. Click on **Print** to print or close the window to cancel.

Save the mission

To save the mission, click on **Close**. A window will open where you type in the name for the mission, or keep the default name, identified by the date of the mission itself. Click on the **disk** to proceed or on the **X** to exit without saving.

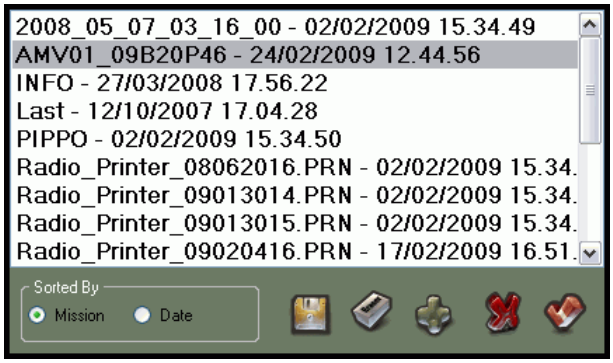
The data of each mission are automatically saved every 5 seconds in a file called *LAST*, in the archive. This is done so that if a blackout occurs, you don't loose all the data. Remember to rename the *LAST* record in the archive, otherwise it will be overwritten by the new mission you will start.

Stopping a mission

To stop a transmission in progress, connect the interface and the *TempStick Radio* and click on **Connect**. When connection is established, click on the **Stop** sign in the right part of the window to stop the mission. The unit will immediately stop transmitting.

Data Archive

When a transmission session is saved, *TSR* stores the data from that mission in the archive. Please remember to setup the destination folder for the data files in the configuration window before saving data.
Click on **Archive** to display a list of missions that have been saved.



This window will display a list of missions that may be ordered in chronological order (based upon the mission start date and time), by selecting the *Date* option, in the *Sorted By* box, or according to the their names, by selecting the *Mission* option.
To close the window click on **Close**.

Open a mission from the Archive

To open a mission double click on the entry in the list or select it and click on the **Accept Data** button on the bottom right.

Remove a mission from the Archive

To delete a saved mission, select it and click on **Delete stored data**.

Rename a mission in the Archive

You might want to rename a mission (especially the "*Last*" mission if this is a result of an accidentally interrupted transmission). Select it and click on *Rename* (the disk icon) to change its name.

Import a mission from the Radio Printer

After having connected the USB pen-drive to the PC, enter the *Archive* of the *TSR* and press the **+** button (**Import from Radio Printer**). Select the folder where the files you want to import are and press **Open**. Then, choose a name for the file and confirm and your mission will be listed in the *Archive*.

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